Perceptual Image Compression

NASA missions generate vast quantities of image data. This technology will be needed by NASA to transmit and distribute compressed scientific and documentary images and video.

Objective

To develop image compression technology that will yield the highest possible image quality for a given bit rate.

Approach

Design simple, efficient models of human spatial, temporal, and color processing and incorporate these into compression technologies. Use vision models to reduce the visibility of artifacts and to reduce file size and bit rate. Provides user control over desired picture quality; control over desired compression efficiency; and optimum compression at a given picture quality.

Impact

NASA missions generate vast quantities of image data. This technology will be needed by NASA to transmit and distribute compressed scientific and documentary images and video. Two patents have been awarded.

Potential Commercial Uses:
- Storage and transmission of X-ray and MRI pictures
- Internet multimedia
- Cable TV, Advanced Television or HDTV
- Motion picture transmission, archiving, and editing.

Relevance to Exploration Systems

Digital technology will be needed by NASA to transmit and distribute compressed scientific and documentary images and video.

H&RT Program Elements:

This research capability supports the following H&RT program /elements:

ASTP: Software, Intelligent Systems & Modeling; Communications, Computing, Electronics & Imaging.

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